

WHAT IS CLAIMED IS:

1. A method for allocating memory in a computer system, the method comprising:
outputting a request from an application to an operating system for allocation of a block of memory by the operating system to the application;
5 accessing the block of memory at the application;
dividing the block of memory into frames;
dividing each of the frames into instances; and
associating an application-defined instance type with the instances for data storage using the instances.

10 2. The method of claim 1 wherein accessing the block of memory includes allocating a block of memory that begins on a page boundary.

15 3. The method of claim 1 wherein the size of the block of memory is determined by a coding parameter associated with the application.

4. The method of claim 1 wherein dividing the block of memory into frames includes identifying a first page boundary within the block of memory.

20 5. The method of claim 4 wherein dividing the block of memory into frames further includes designating a portion of the block of memory before the first page boundary as unused.

25 6. The method of claim 1 wherein a size of each frame is determined by a coding parameter.

7. The method of claim 1 wherein a size of each frame is determined by a page size used by the operating system.

8. The method of claim 1 wherein dividing a block of memory into frames includes:
determining a last page boundary within the block of memory; and
designating a portion of the block of memory after the last page boundary as unused.

5 9. The method of claim 1 wherein a single type of data is stored in the block of memory.

10 10. The method of claim 1 wherein data from a fast query system is stored in the instances.

11. A software application using application-level memory management, the software application comprising:
an application-level memory manager operable to allocate a block of memory to store
15 data elements, divide the block of memory into frames, and divide each frame into instances;
and
application code operable to define data elements as having an instance type, and to
associate the instance type with the instances for storage of the data elements in the instances.

20 12. The software application of claim 11 wherein the block of memory begins on a page boundary.

13. The software application of claim 11 wherein the size of the block of memory is determined by a coding parameter.

25 14. The software application of claim 11 wherein the block of memory includes a first page boundary.

15. The software application of claim 14 wherein a portion of the block of
30 memory before the first page boundary is designated as unused.

16. The software application of claim 11 wherein a size of each frame is determined by a coding parameter.

17. The software application of claim 11 wherein a size of each frame is determined by the page size used by the operating system.

18. The software application of claim 11 wherein the block of memory includes a last page boundary and a portion of the block of memory after the last page boundary is designated as unused.

19. The software application of claim 11 wherein a single type of data is stored in the block of memory.

20. The software application of claim 11 wherein the application code implements a fast query system.

21. A method comprising:
associating data elements used by an application with an application-defined instance type;
associating the application-determined instance type with an application-determined one of a plurality of blocks of memory allocated by an operating system, wherein the application-determined memory block is divided into frames that are further divided into instances; and
populating the instances with the data elements.

22. The method of claim 21 wherein associating the application-determined instance type with the application-determined block of memory comprises associating a single application-determined instance type with the application-determined block of memory.

23. The method of claim 21 further comprising:

removing the data elements; and

returning the block of memory to the operating system.

24. The method of claim 23 wherein returning the block of memory to the
5 operating system comprises:

returning the block of memory to a buffer; and

determining after a pre-determined period of time that the block of memory is no
longer required by the application.